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Andrew K. Krumel

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EXAMINER

ODLAND, DAVID E

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,519

Applicant(s)

KRUMEL, ANDREW K.

Examiner

David Odland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-62 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/17/2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 27-29, 51 and 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 recites "...the plurality of commands..." There is a lack of antecedent basis for this limitation in the claim.

Claims 28 and 29 are rejected because they depend on claim 27.

Claim 51 recites "...one or more second logic units..." This limitation is confusing because claim 1 does not recite a first logic unit. Furthermore, the claim recites "...the first logic unit..." There is a lack of antecedent basis for this limitation in the claim.

Claim 52 is rejected because it depends on claim 51.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1,4,17-43,47 and 49-62, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fallside et al. (USPN 6,326,806), hereafter referred to as Fallside, in view of Klimenko (USPN 5,974,547), hereafter referred to as Klimenko.

Referring to claim 1, Fallside discloses a method for updating the configuration of a programmable logic device-based system ("PLD system") over a packet-based network using a protocol (a technique for reconfiguring an FPGA device over an Ethernet network (see figure 3, abstract and column 3 line 40 through column 4 line 63)), comprising the steps of operating the PLD system in accordance with first configuration data 9the FPGA is configured with an initial configuration (see figure 3, abstract and column 3 line 40 through column 4 line 63)), wherein a third packet comprises a command in accordance with the protocol and contains at least second configuration data for the PLD system (the reconfiguration data is send to the FPGA system (see figure 3, abstract and column 3 line 40 through column 4 line 63)), loading the second configuration into the PLD system and operating the PLD system in accordance with the second configuration data (the reconfiguration data is loaded form the memory and the reconfiguration takes place (see figure 3, abstract and column 3 line 40 through column 4 line 63)).

Fallside does not disclose the details of how the reconfiguration data is downloaded including sending at least a first packet from a computing system to the PLD system over the network, in response to the first packet, sending at least a second packet from the PLD system to the computing system over the network, wherein the second packet contains information identifying the PLD system and also information indicative of one or more commands in accordance with the protocol, wherein the PLD system operates in accordance with the one Or more commands;

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in response to the second packet, sending at least a third packet from the computing system to the PLD system.

However, Klimenko discloses a method comprising sending at least a first packet from a computing system to the PLD system over a network (a server 50 sends a BootP reply to a client PC over a network (see figures 2A, 4A and 4B and column 11 line 8-30)), in response to the first packet, sending at least a second packet from the PLD system to the computing system over the network (in response to receiving the BootP reply, the client PC responds with a TFTP request which it sends back to the server 50 (see figures 2A, 4A and 4B and column 11 line 8-30)), wherein the second packet contains information identifying the PLD system and also information indicative of one or more commands in accordance with the protocol (the TFTP is sent back to the server 50 and includes a read command and since the system is using TCP/IP the packet, inherently has the source address of the client in it (see figures 2A, 4A and 4B and column 11 line 8-30)), wherein the PLD system operates in accordance with the one or more commands (the command allows the proper boot file to be downloaded to the client so the client can operate properly (see figures 2A, 4A and 4B and column 11 line 8-30)), in response to the second packet, sending at least a third packet from the computing system to the PLD system (in response to the TFTP request by the client, the boot file is transmitted back to the client (see figures 2A, 4A and 4B and column 11 line 8-30)). It would have been obvious to one skilled in the art at the time of the invention to implement these features into Fallside because doing so would allow for proper communication and set up of the FPGA.

Referring to claim 4, Fallside does not disclose that a plurality of third packets are received by the PLD system, wherein, after receiving each of the third packets, the PLD system

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sends at least a fourth packet to the computing system over the network, wherein the fourth packets each acknowledge receipt of a corresponding one of the third packets. However, Klimenko discloses that the client PC acknowledges receiving packets from the server (see figures 2A, 4A and 4B and column 11 line 8-30)). It would have been obvious to one skilled in the art at the time of the invention to implement this feature into Fallside because doing so would make the system more reliable since acknowledgments would tell the system that the reconfiguration data was properly received.

Referring to claim 17, Fallside discloses the PLD system processes packets sent from the computing system (the system processes the reconfiguration data it receives (see figure 3, abstract and column 3 line 40 through column 4 line 63)).

Referring to claim 18, Fallside discloses the PLD system extracts commands in accordance with the protocol from the packets sent from the computing system (the system processes the reconfiguration data it receives (see figure 3, abstract and column 3 line 40 through column 4 line 63)).

Referring to claim 19, Fallside discloses that the second packet includes a version identifier for the PLD system (the data in Fallside is communicated using the TCP/IP protocol and that protocol is standardized with a version field in the corresponding packets, thus the packet transferred in Fallside indicate the version to be used by the system.

Referring to claim 20, Fallside does not disclose that the second packet includes a plurality of commands in accordance with the protocol. However, It would have been obvious to one skilled in the art at the time of the invention to implement the Fallside system with this

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feature because sending a plurality of commands at one time versus sending the commands sequentially, would make the system more efficient.

Referring to claims 21 and 22, Fallside does not disclose that the second packet contains location information about storage areas. However, Klimenko discloses that the second packet contains information that is indicative of a location coupled to the network (the TFTP request is sent using TCP/IP so it has the address of the server (see figure 4A and 4B)), wherein the location contains information that identifies a plurality of commands in accordance with the protocol to which the PLD system responds (the server has the boot file which is a compilation of instructions for the client to execute (see figures 4A and 4B)); the location comprises storage coupled to the computing system (the server includes a hard disk (see figure 4A and 4B)). It would have been obvious to one skilled in the art at the time of the invention to implement this feature into Fallside because doing so would provide a proper protocol for accessing the server.

Referring to claims 23-26, Fallside does not disclose that the location comprises storage on a second network, wherein the computing system accesses the storage via the second network or that the information that is indicative of the location comprises an address of a node on the second network, wherein the second network comprises an Internet network and wherein the information that is indicative of the location comprises a URL. However, it would have been obvious to one skilled in the art at the time of the invention to implement these features into Fallside because Storage Area Networks and accessing them through the Internet are commonly used standardized systems, therefore it would allow the Fallside system to conform to an established standard.

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Referring to claims 27-29, Fallside does not disclose that the plurality of commands include one or more first commands to which the PLD system responds and also include one or more second commands to which the PLD system responds or that the first commands comprise core commands to which at least a second PLD system also responds wherein the second commands comprise custom commands to which the second PLD system does not respond. However, Klimenko discloses a boot file that comprises a plurality of commands to which the client may and may not respond to (see figures 4A and 4B. It would have been obvious to one skilled in the art at the time of the invention to implement the Fallside system with these features because sending plural commands at one time would make the system more efficient.

Referring to claims 30, 32, 39 and 40 Fallside does not disclose that the network is a LAN or the packets are UDP, IPX or broadcast packets. However, it would have been obvious to one skilled in the art at the time of the invention to implement the Fallside system with this configuration because these are standardized protocols.

Referring to claims 31 and 33-38, Fallside discloses that the network is an Ethernet network and the packets are TCP, Ethernet, link layer, network layer, IP and transport layer (the network is Ethernet and the reconfiguration data is transmitted using TCP/IP protocol stack (see column 4).

Referring to claim 41, Fallside discloses that at least certain of the packets sent by the PLD system comprise packets having a predetermined source address that are directed to a second predetermined port (this is how the TCP/IP protocol works and Fallside uses this protocol (see column 4)).

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Referring to claim 42, Fallside discloses that the PLD system does not implement a TCP/IP stack (the system can be implemented using Bluetooth (see column 4 line 9)).

Referring to claim 43, Fallside discloses that the PLD system comprises an FPGA (the PLD is an FPGA (see figure 3)).

Referring to claim 47, Fallside does not disclose that the PLD system comprises a device selected from the group consisting of a PDA, a mobile telephone, a portable computer, a game system, a household appliance, a video recording system and a paging device. However, It would have been obvious to one skilled in the art at the time of the invention to implement the Fallside system as one of these devices because these devices are widely used gadgets.

Referring to claim 49, Fallside does not disclose that the information identifying the one or more commands in accordance with the protocol to which the PLD system responds comprises XML code. However, It would have been obvious to one skilled in the art at the time of the invention to implement the commands in Fallside with XML because XML is an established standard.

Referring to claims 50-52, Fallside discloses a first logic unit that processes packets sent by the computing system, wherein the first logic unit identifies one or more commands in the packets sent by the computing system (the FPGA responds to receiving reconfiguration data (see figure 3, abstract and column 3 line 40 through column 4 line 63)) and the PLD system includes one or more second logic units coupled to the first logic unit that carries out one or more operations that correspond to the one or more commands and the PLD system includes one or more third logical units, wherein the third logic units carry out one or more logic operations that

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correspond to packets that the system transmits to the computing system (the system of Fallside can use a plurality of FPGAs (see figure 5)).

Referring to claim 53, Fallside does not disclose that the PLD system includes first and second logic portions, wherein a first logic portion operates to communicate packets in accordance with the protocol with the computing system, wherein the second logic portion operates to carry out a process that does not comprise communicating packets in accordance with the protocol with the computing system. However, it would have been obvious to one skilled in the art at the time of the invention to implement Fallside in this manner because doing so would make the system more versatile in how it reconfigures itself.

Referring to 54, Fallside does not disclose that the computing system operates in response to software that is transmitted to the computing system from the PLD system. However, It would have been obvious to one skilled in the art at the time of the invention to implement the Fallside system in this manner because software is less costly than hardware and furthermore sending software would make the system more versatile.

Referring to claim 55, Fallside does not disclose that the computing system operates in response to software that is stored in a location identified by a packet from the PLD system. However, Klimenko discloses a system wherein software resides on the server (see figure 4A and 4B)). It would have been obvious to one skilled in the art at the time of the invention to implement Fallside in this manner because doing so would free up resources on the PLD system.

Referring to claims 56-58, Fallside does not disclose that the location comprises a storage location on a second network coupled to the computing system, the location is identified by a network address and the location is determined from an identifier for the PLD system. However,

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it would have been obvious to one skilled in the art at the time of the invention to implement these features into Fallside because Storage Area Networks (SANs) and accessing them through the Internet using IP addressing, are commonly used standardized systems, therefore it would allow the Fallside system to conform to an established standard.

Referring to claim 59, Fallside discloses that the PLD system operates to perform a first process in accordance with the first configuration data (the FPGA is first initialized with configuration data (see figure 3, abstract and column 3 line 40 through column 4 line 63)), and wherein the PLD system operates to perform a second process in accordance with the second configuration data (the FPGA get reconfigured (see figure 3, abstract and column 3 line 40 through column 4 line 63)).

Referring to claim 60, Fallside discloses that the first process is different from the second process (the initial configuration and the reconfiguration are different (see figure 3, abstract and column 3 line 40 through column 4 line 63)).

Referring to claim 61, Fallside discloses that after the PLD system operates to perform the first process, wherein in response an input the PLD system reconfigures to operate to receive packets in accordance with the one or more commands (the FPGA operates according to the initial configuration but then received signals over the Ethernet line to reconfigure itself (see figure 3, abstract and column 3 line 40 through column 4 line 63)) and no longer operates to perform the first process; wherein after loading of the second configuration data the PLD system operates to perform the second process and no longer operates to receive packets in accordance with the one or more commands (when the reconfiguration is downloaded it is then loaded from

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the Ram and the reconfiguration takes place thus it does not operate in the initial configuration anymore (see figure 3, abstract and column 3 line 40 through column 4 line 63)).

Referring to claim 62, Fallside does not disclose that the PLD system comprises programmable logic having at least a first logic portion and a second logic portion, wherein, in response to loading of the second configuration data, the second logic portion is reconfigured and the first logic portion is not reconfigured. However, it would have been obvious to one skilled in the art at the time of the invention to implement the Fallside system in this manner because doing so would make the system more reliable and versatile.

5. Claims 2,3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fallside in view of Klimenko and further in view of Rasmussen (USPN 6,640,334), hereafter referred to as Rasmussen.

Referring to claims 2 and 3, Fallside discloses after the third packet is received by the PLD system, saving the second configuration data contained in the third packet in memory of the system (the reconfiguration is stored in system RAM (see item 208 of figure 3)).

Fallside does not disclose that the memory is non-volatile memory such as Flash memory.

However, Rasmussen discloses a system for remotely updating firmware, wherein Flash memory is used (see abstract and column 1)). It would have been obvious to one skilled in the art at the time of the invention to implement the RAM in Fallside as non-volatile Flash memory because as Rasmussen points out in column 1 lines 55-57, Flash memory does not require special equipment for updating and it retains information during power loss and so battery-backup circuitry is not needed.

Referring to claim 5, Fallside discloses that after receiving each of the third packets, the PLD system saves second configuration data from the third packets in memory of the system (the reconfiguration data is saved in RAM (see figure 3)). Fallside does not disclose that the memory is non-volatile memory such as Flash memory. However, Rasmussen discloses a system for remotely updating firmware, wherein Flash memory is used (see abstract and column 1)). It would have been obvious to one skilled in the art at the time of the invention to implement the RAM in Fallside as non-volatile Flash memory because as Rasmussen points out in column 1 lines 55-57, Flash memory does not require special equipment for updating and it retains information during power loss and so battery-backup circuitry is not needed.

Referring to claim 6, Fallside does not disclose saving the second configuration data prior to sending each of the fourth packets. However, Klimenko discloses that the client PC acknowledges receiving packets from the server (see figures 2A, 4A and 4B and column 11 line 8-30)). It would have been obvious to one skilled in the art at the time of the invention to implement this feature into Fallside because doing so would make the system more reliable since acknowledgments would tell the system that the reconfiguration data was properly received.

Referring to claim 7, Fallside does not disclose that after receipt by the computing system of a fourth packet that acknowledges receipt by the PLD system of a final third packet, the computing system sends at least a fifth packet to the PLD system, wherein, in response to the fifth packet, the PLD system saves one or more data indicating that all of the second configuration data has been received and stored in the non-volatile memory. However, it would have been obvious to a skilled artisan at the time of the invention to implement this feature into

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the Fallside system because doing so would make Fallside more reliable since acknowledgments would tell the system that the reconfiguration data was properly received.

6. Claims 8-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fallside in view of Klimenko and further in view of "PacketShaper 4000 Getting Started Version 4.09" by Packeteer.

Referring to claims 8-11, Fallside does not disclose the second configuration data is loaded into the PLD system in response to a user command from a user, wherein the user command comprises a command input by a switch and wherein the switch comprises a physical switch on the PLD system or wherein the user command comprises a command entered via the computing system. However, Packeteer discloses that it is known to include a power switch to enable/disable function of a device, such as an on/off switch (see page 7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention to include an on/off toggle switch as a user command, thereby affecting when the reconfiguration is performed because it is well known in the art to do so, as taught by Packeteer (page 7).

Referring to claims 12-14 and 16, Fallside does not disclose one or more display devices provide visual feedback of the status of the PLD system, wherein the one or more display devices comprise one or more LEDS or wherein the one or more display devices comprise a liquid crystal display, wherein the at least one LED indicates that the step of loading the second configuration data into the PLD system is in process. However, Packeteer teaches that it is known in the art to provide a status LEDs and an LCD to allow users the ability to view the operational status of the device (see pages 7 and 41)). Therefore, for these reasons it would have

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been obvious to one having ordinary skill in the art at the time the invention was made to include status LEDs/LCDs in the system of Fallside.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fallside in view of Klimenko and further in view of Granville et al. (USPN 5,590,060), hereafter referred to as Granville.

Referring to claim 15, Fallside does not disclose that the PLD system provides audio feedback indicative of the status of the PLD system. However, Granville discloses a system wherein an audio feedback signal is provided back to the operator of the system to indicate the occurrence of an event or the status of the system (see column 5 line 65 through column 6 line 10). It would have been obvious to one skilled in the art at the time of the invention to implement the Fallside system with this feature because doing so would allow users the ability to know the operational status of the device, thereby making the system more user friendly.

8. Claim 44-46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fallside in view of Klimenko and further in view of "Design of a High-Performance ATM Firewall" by Xu et al., hereafter referred to as Xu.

Referring to claims 44-46 and 48, Fallside does not disclose that the system is an Internet security system comprising a firewall that filters packets based on filtering rules. However, Xu discloses of an Internet security device that comprises a firewall for filtering out packets according to rules (see page 1)). It would have been obvious to one skilled in the art at the time

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of the invention to implement Fallside as an Internet security device because such a device helps to secure the network from malicious entities.

Conclusion

9. The following prior art, which is made of record and not relied upon, is considered pertinent to applicant's disclosure:

- a. U.S. Patent Number 5,903,566 to Flammer III et al.
- b. U.S. Patent Number 6,052,785 to Lin et al.
- c. U.S. Patent Number 6,076,168 to Fiveash et al

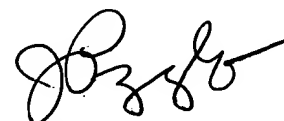
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Odland whose telephone number is (571) 272-3096. The examiner can normally be reached on Monday - Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached at (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

deo

September 6, 2004



JOHN PEZZLO
PRIMARY EXAMINER